

**WHAT IS CLAIMED IS:**

1. An apparatus for recovering a reference clock, generated by a master clock in a sender, from items of timing information sent by said sender over a network to said apparatus, said apparatus comprising a controllable slave clock and a control circuit: for determining each  $r$ th frequency drift between frequencies of said master clock and said slave clock as a function of  $(r \times m \times N) - C'_a(n + r \times m)$ , where

$$C'_a(n) = \left( \sum_{i=0}^{q-1} C'(n-i) \right) / q$$

$N$  is a number of cycles of said master clock between sending of consecutive said timing information items,  $C'(s)$  is a number of slave clock cycles between receipt of  $(s-rm)$ th and  $sth$  said timing information items from said network,  $m$  is an integer greater than zero,  $q$  is an integer greater than one, and  $r$  is a non-negative integer representing an order of a drift determination; and for controlling said slave clock so as to reduce a drift between said master clock and said slave clock.

2. An apparatus as claimed in claim 1, in which said network is a non-synchronous network.
3. An apparatus as claimed in claim 2, in which said network is a packet switching network and each said timing information item is a packet.
4. An apparatus as claimed in claim 1, in which  $q \leq m$ .
5. An apparatus as claimed in claim 1, in which said slave clock is a voltage controlled oscillator.
6. An apparatus as claimed in claim 1, in which said control circuit is arranged to adjust said frequency of said slave clock after each said drift determination by:

$$x[(r \times m \times N) - C'_a(n + r \times m)]$$

where  $x$  is a parameter determining a rate of drift compensation.

7. A method of recovering a reference clock, generated by a master clock in a sender, from items of timing information sent by said sender over a network, comprising: determining each  $r$ th frequency drift between frequencies of said master clock and a slave clock as a function of  $(r \times m \times N) - C'_a(n + r \times m)$ , where

$$C'_a(n) = \left( \sum_{i=0}^{q-1} C'(n-i) \right) / q$$

$N$  is a number of cycles of said master clock between sending of consecutive said timing information items,  $C'(s)$  is a number of slave clock cycles between receipt of  $(s-rm)$ th and  $sth$  said timing information items from said network,  $m$  is an integer greater than zero,  $q$  is an integer greater than one; and  $r$  is a non-negative integer representing an order of a drift determination; and controlling said slave clock so as to reduce a drift between said master clock and said slave clock.